

KEY Points

PROGRESS
THROUGH
PARTNERSHIP

11

AGRICULTURE,

NATURAL RESOURCES

AND ENVIRONMENT



INFORMATION SERVICE

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Wellcome Centre for Medical Science

THE SECTOR

Agriculture, natural resources and the environment form the bases of very many industries. Thus the activities in this Panel's remit contribute widely to the UK's prosperity and quality of life. The components of the ANRE sector are themselves interlinked. For example, environmental developments are central to the future effectiveness of agriculture and the use of natural resources, both marine and terrestrial, as well as other industries.

THE FUTURE

The sector is one in which change will be strongly driven by legislation, both national and international, promoting the liberalisation of world trade and the protection of the environment. Continuing moves towards the liberalisation of trade will mean that UK agriculture will be increasingly influenced by food imports from ever-widening geographical sources. UK farmers will concentrate on production in which they have the greatest competitive advantage. Farm activity and rural land use, however, will become increasingly diversified - including non-food farms with new crops grown for industrial purposes, or farms with big recreational and conservation activities. All economic and leisure activities will be affected by legislation promoting pollution control and sustainable use of the environment. This, in turn, will lead to continuing growth in what has already become a new 'environment industry' ranging from treatment plants and clean processing technologies to environmental monitoring and research and consultancy. Environmental policy will continue to be a big driver for reusable, recyclable and other novel materials and products, efficient energy plants and vehicles.

KEY RECOMMENDATIONS

The Panel has recommended extra investment in key areas amongst the many within its remit, including the following:

- Animal, microbial and plant **biotechnology** and cognate sciences to underpin new products and processes in a wide range of activities, e.g. aquaculture and pharmaceuticals.
- **Integrated ecosystem management** for terrestrial, aquatic, coastal and oceanic systems.
- **Alternative energy sources.**

SCIENCE AND TECHNOLOGY PRIORITIES

The Panel has identified many high priority areas which include the examples given above and the following:

- **Environmental research programmes** encompassing modelling, monitoring and forecasting, environmental risk assessment, and processes of environmental change.

TECHNOLOGY *Foresight*

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- **Robotics:** remote sensor and survey systems.
- **Sustainable resourcing** of construction materials and other natural resources.
- Widespread use of **life cycle evaluation and management, and eco-design principles and practice studies.**
- **Technologies for** site/soil remediation, landfill management and groundwater clean-up.
- Techniques to **produce, monitor, purify, conserve and distribute potable water**, including desalination and other processes.
- Studies of **wild fish** conservation and aquaculture.
- Improved technology for utilising **forest products.**
- **Diet and health:** more healthy, attractive and better tasting food products from plants and animals, with improved nutritional value, freshness, convenience and value.

FORWARD WITH FORESIGHT

The Technology Foresight Panel on Agriculture, Natural Resources and Environment recommends the following action to drive forward the implementation of its recommendations:

- **Increased coordination and transfer of knowledge** from fundamental research to the primary producer, processor, retailer and consumer.
- Increased speed in the **uptake of new ideas and technology**, for example for:
 - welfare-friendly systems for livestock;
 - use of animal wastes;
 - new multi-option, pest- and disease-resistant crops;
 - crops as bioreactors; and
 - new bioremediation systems.
- Promote public and political understanding of the balance between risks and benefits in environmental legislation and regulations.

Additional cross-sectoral points include: co-ordination of the Technology Foresight Programme with SMEs; assessing the implications of sustainable development for research in the ANRE Panel's remit; and reviewing measures to stimulate the generation and protection of intellectual property.

TECHNOLOGY FORESIGHT PROGRAMME

The purpose of the Technology Foresight Programme is to help business people, engineers and scientists become better informed about each other's efforts. It is bringing these communities together in networks - looking forward in partnership - which will help to identify emerging opportunities in markets and technologies. The Programme will also help to ensure that resources are used to best effect in support of wealth creation and improving the quality of life. The results of Foresight will inform decisions on spending by Government and industry. Foresight findings are available to small and medium sized enterprises which may not have the resources to undertake Foresight work on their own account.

The Technology Foresight Programme is co-ordinated by the Office of Science and Technology (part of the Cabinet Office). Foresight panels have been working in each of the following 15 sectors:

Agriculture, Natural Resources & Environment	Health & Life Sciences
Chemicals	IT & Electronics
Communications	Leisure & Learning
Construction	Manufacturing, Production & Business Processes
Defence & Aerospace	Materials
Energy	Retail & Distribution
Financial Services	Transport
Food & Drink	

Summary leaflets (like this one) are available for each sector. Copies of these documents are available from the Office of Science and Technology, Albany House, 84-86 Petty France, London, SW1H 9ST (Fax: 0171-271-2015). Full reports for each sector are available from Her Majesty's Stationery Office.

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